

METHOD FOR PRODUCING AND SCREENING MASS-CODED  
COMBINATORIAL LIBRARIES FOR DRUG DISCOVERY  
AND TARGET VALIDATION

ABSTRACT OF THE DISCLOSURE

5       The present invention provides a method for producing a mass-coded combinatorial library comprising a set of compounds having the general formula  $X(Y)_n$ , where X is a scaffold, each Y is, independently, a peripheral moiety, and n is an integer greater than 1.

10      The method comprises selecting a peripheral moiety precursor subset from a peripheral moiety precursor set. The subset includes a sufficient number of peripheral moiety precursors that at least about 50 distinct combinations of n peripheral moieties derived from the

15      peripheral moiety precursors in the subset exist. The subset of peripheral moiety precursors is selected so that at least about 90% of all possible combinations of n peripheral moieties derived from the subset have a molecular mass sum which is distinct from the molecular

20      mass sums of all of the other combinations of n peripheral moieties. The method further comprises contacting the peripheral moiety precursor subset with a scaffold precursor which has n reactive groups.

Methods of use of the mass-coded combinatorial library

25      produced by this method for identifying a ligand to a particular biomolecule are also disclosed.